



## Oxygen sensitivity of *Lactococcus lactis* subsp. *lactis* is strain dependent

Werner, Birgit Brøsted; Carrigues, C.; Vogensen, Finn Kvist; Jespersen, Lene

*Publication date:*  
2012

*Document version*  
Publisher's PDF, also known as Version of record

*Citation for published version (APA):*  
Werner, B. B., Carrigues, C., Vogensen, F. K., & Jespersen, L. (2012). *Oxygen sensitivity of Lactococcus lactis subsp. lactis is strain dependent*. Abstract from IDF Cheese ripening and Technology Symposium 2012, Madison, Wisconsin, United States.

## Oxygen Sensitivity of *Lactococcus lactis* subsp. *lactis* is Strain Dependent

B.B. Werner<sup>1\*</sup>, C. Carrigues<sup>2</sup>, F.K. Vogensen<sup>1</sup>, L. Jespersen<sup>1</sup>

<sup>1</sup>University of Copenhagen, Faculty of Science, Department of Food Science, Denmark;

<sup>2</sup>Chr. Hansen A/S, Physiology, Cultures & Enzymes Division, Denmark

bbw@life.ku.dk

The acidification activity of primary starter cultures used for cheese production is influenced by the initial oxygen content of milk. Acidification activity (i.e.  $\Delta\text{pH}$ ) is an important parameter for the final cheese quality. The starter culture converts oxygen present in the milk. However, some strains are more affected by the initial oxygen content than others. At high initial oxygen most strains show differences in  $\Delta\text{pH}$  before and after oxygen depletion where the redox potential drops abruptly. The sensitive strains do not show this change in  $\Delta\text{pH}$  at low initial oxygen.

In order to characterise oxygen response and strain diversity microarray analysis is used to identify significantly differentially expressed genes during fermentation of milk with high and low initial oxygen, respectively. The preliminary results of this study will be presented on the poster.

Study of the affected genes will provide knowledge about how the properties of the starter culture are influenced by the oxygen conditions. This knowledge can help the dairy industry to decide whether to change the initial oxygen content of the milk or to select new starter cultures with higher oxygen tolerance in order to save time on the acidification process.

Keywords: Acidification activity, Oxygen Sensitivity, Redox Potential, Gene Expression